

Chapter 1

Getting Started

Thank you for choosing the P6NGM Series (MS-7366 v1.X) Micro-ATX mainboard. The P6NGM Series mainboards are based on **GeForce® MCP73U/PV/V** chipset for optimal system efficiency. Designed to fit the advanced **Intel® Pentium 4 LGA775** processor, the P6NGM Series deliver a high performance and professional desktop platform solution.

Mainboard Specifications

Processor Support

- Supports Intel® Core 2 Quad, Core 2 Duo, Pentium, Celeron processors in the LGA775 package.

Supported FSB

- Supports FSB up to 1333 MHz (for 73U/PV)
- Supports FSB up to 1066 MHz (for 73V)

Chipset

- Nvidia MCP73U/PV/V chipset

Memory Support

- DDR2 533/667/800 SDRAM (240pin/ non-ECC) (for 73U/PV)
- DDR2 533/667 SDRAM (240pin/ non-ECC) (for 73V)
- 2 DDR2 DIMMs (4GB Max)

LAN

- Supports LAN 10/100/1000 Fast Ethernet by Realtek® RTL 8211BL (for 73U/PV)
- Supports LAN 10/100 Fast Ethernet by Realtek® RTL 8201CL (for 73V)

IEEE 1394 (optional)

- Chip integrated by JMicron JMB381

Audio

- Chip integrated by Realtek® ALC888
- Supports 5.1 channels audio out
- Compliant with Azalia 1.0 Spec

IDE

- 1 IDE port by MCP73U/PV/V
- Supports Ultra DMA 66/100/133, PIO & Bus Master operation mode

SATA

- 4 SATAII ports support 4 SATA devices

RAID

- SATA1~4 support RAID 0, 1, 5 ,0+1, JBOD (for 73U/PV)
- SATA1~4 support RAID 0, 1, JBOD (for 73V)

Floppy

- 1 floppy port
- Supports 1 FDD with 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB

Connectors

● Back panel

- 1 PS/2 mouse port
- 1 PS/2 keyboard port
- 1 VGA port
- 1 HDMI port (optional)
- 1 DVI port (optional)
- 1 IEEE1394 port (optional)
- 4 USB 2.0 Ports
- 1 LAN jack
- 3 audio jacks

● On-Board Pinheaders

- 3 USB 2.0 pinheaders (for 73U/PV)
- 2 USB 2.0 pinheaders (for 73V)
- 1 IEEE1394 pinheader (optional)
- 1 Chassis Intrusion Switch pinheader
- 1 Serial port pinheader
- 1 SPDIF-Out pinheader
- 1 Front Panel Audio pinheader
- 1 CD-In pinheader
- 1 TPM pinheader (optional)

Slots

- 1 PCI Express x16 slot
- 1 PCI Express x1 slot
- 2 PCI slots, support 3.3V/ 5V PCI bus Interface

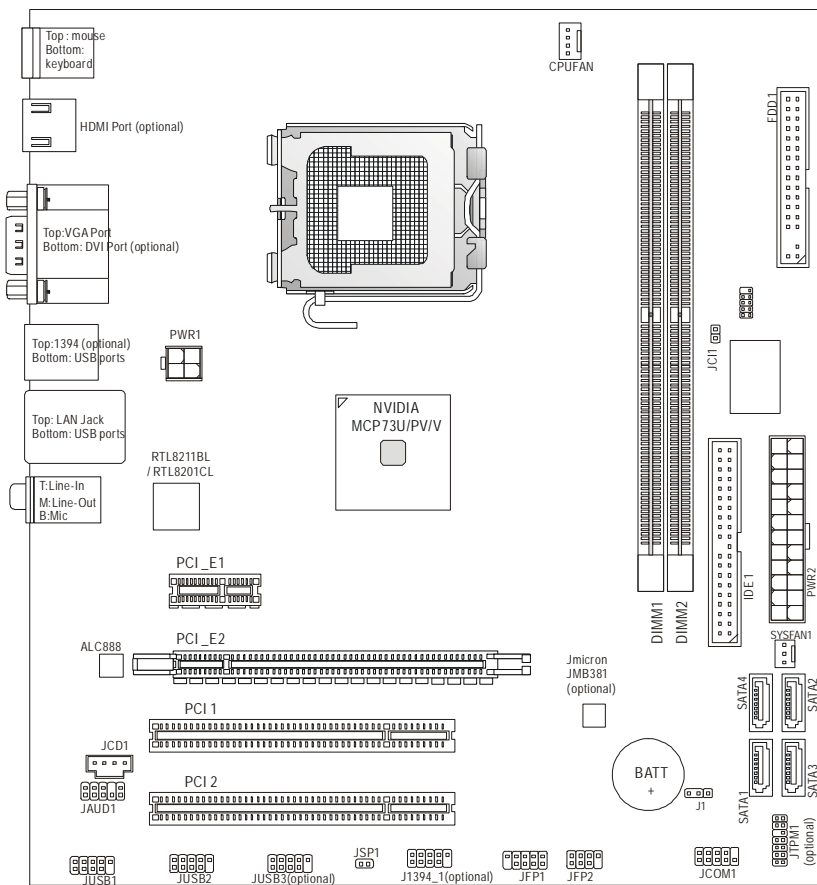
Form Factor

- M-ATX (24.4cm X 22.0cm)

Mounting

- 6 mounting holes

Mainboard Layout

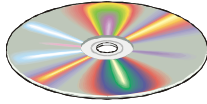


P6NGM Series (MS-7366 v1.X) ATX Mainboard

Packing Checklist



Motherboard



Driver/Utility CD



SATA Cable



Power Cable



Standard Cable for
IDE Devices




Back IO Shield



User's Guide

* The pictures are for reference only and may vary from the packing contents of the product you purchased.



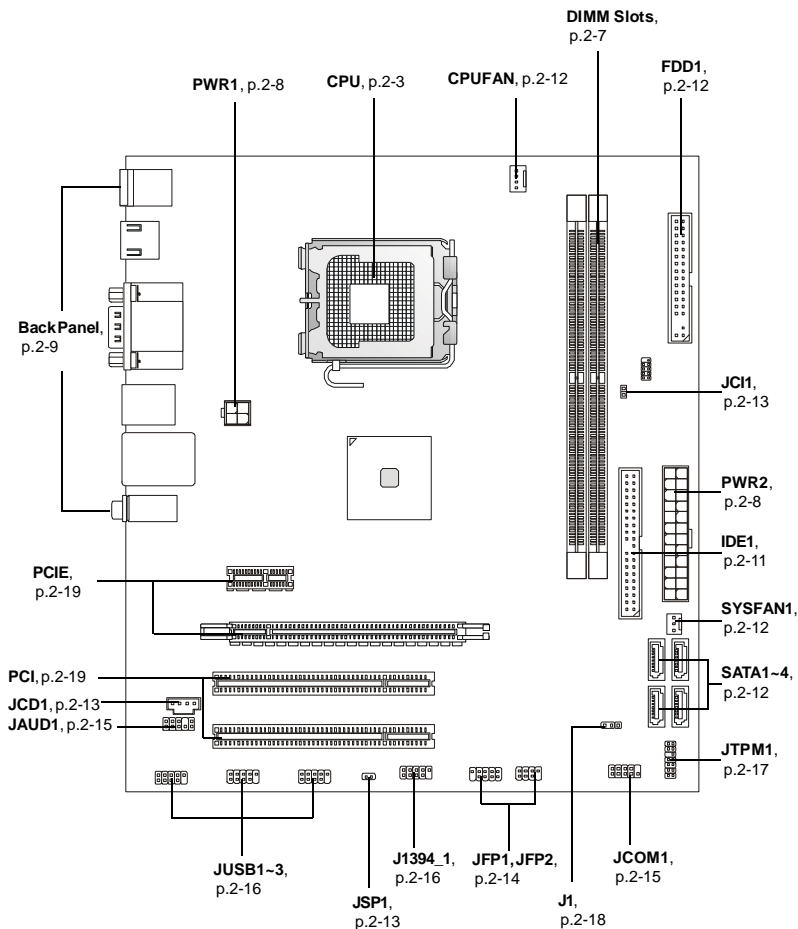
Chapter 2

Hardware Setup

This chapter tells you how to install the CPU, memory modules, and expansion cards, as well as how to setup the jumpers on the mainboard. Also, it provides the instructions on connecting the peripheral devices, such as the mouse, keyboard, etc.

While doing the installation, be careful in holding the components and follow the installation procedures.

Quick Components Guide



CPU (Central Processing Unit)

This mainboard supports Intel® Pentium 4 in LGA 775 package. When you are installing the CPU, **make sure to install the cooler to prevent overheating**. If you do not have the CPU cooler, consult your dealer before turning on the computer.



Important

Overheating

Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.

Replacing the CPU

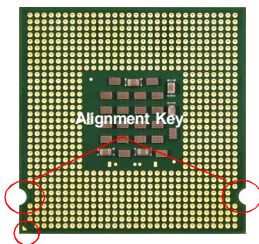
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.

Overclocking

*This mainboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. **We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

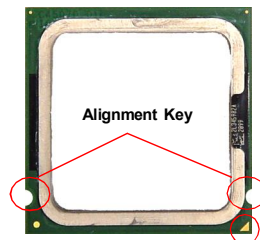
Introduction to LGA 775 CPU

The pin-pad side of LGA 775 CPU.



Yellow triangle is the Pin 1 indicator

The surface of LGA 775 CPU. Remember to apply some thermal paste on it for better heat dispersion.

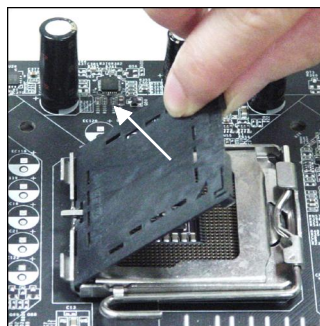
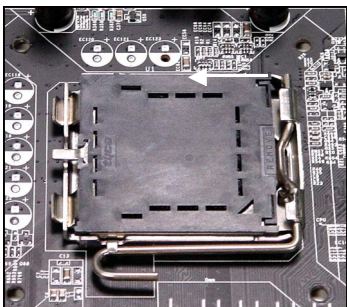


Yellow triangle is the Pin 1 indicator

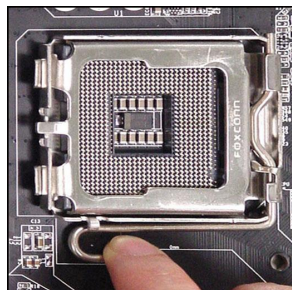
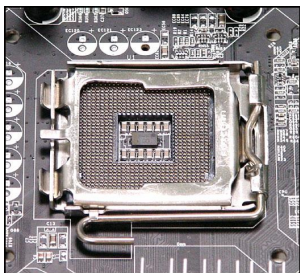
CPU & Cooler Installation

When you are installing the CPU, **make sure the CPU has a cooler attached on the top to prevent overheating.** Meanwhile, do not forget to apply some thermal paste on CPU before installing the heat sink/cooler fan for better heat dispersion. Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

1. The CPU socket has a plastic cap on it to protect the contact from damage. Before you install the CPU, always cover it to protect the socket pin.
2. Remove the cap from lever hinge side (as the arrow shows).



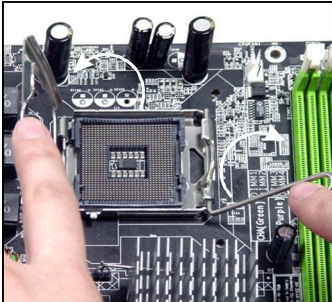
3. The pins of socket reveal.
4. Open the load lever.



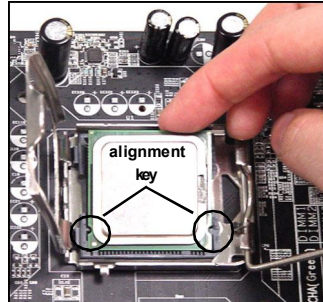
Important

1. Confirm if your CPU cooler is firmly installed before turning on your system.
2. Do not touch the CPU socket pins to avoid damaging.
3. The availability of the CPU land side cover depends on your CPU packing.

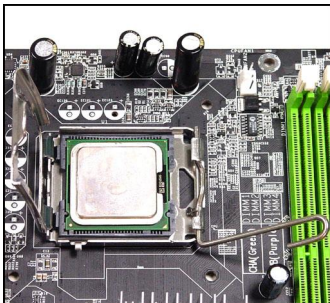
5. Lift the load lever up and open the load plate.



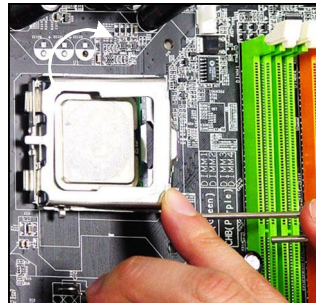
6. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.



7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.



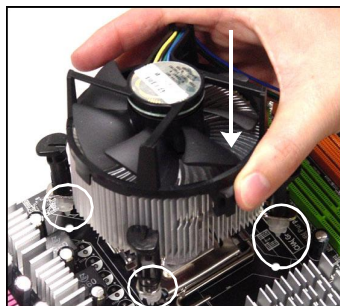
8. Cover the load plate onto the package.



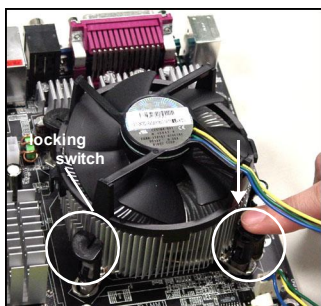
9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under retention tab.



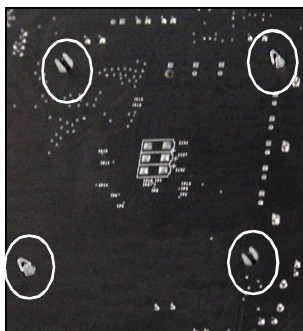
10. Align the holes on the mainboard with the heatsink. Push down the cooler until its four clips get wedged into the holes of the mainboard.



11. Press the four hooks down to fasten the cooler. Then rotate the locking switch (refer to the correct direction marked on it) to lock the hooks.



12. Turn over the mainboard to confirm that the clip-ends are correctly inserted.

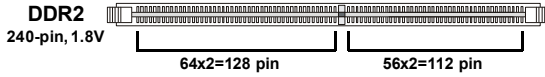


Important

1. Read the CPU status in BIOS (Chapter 3).
2. Whenever CPU is not installed, always protect your CPU socket pin with the plastic cap covered (shown in Figure 1) to avoid damaging.
3. Mainboard photos shown in this section are for demonstration of the CPU/cooler installation only. The appearance of your mainboard may vary depending on the model you purchase.

Memory

These DIMM slots are used for installing memory modules.



Installing Memory Modules

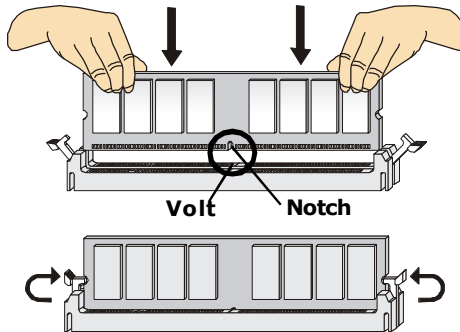
1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.



Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

3. The plastic clip at each side of the DIMM slot will automatically close.



Important

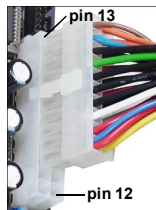
- *DDR2 memory modules are not interchangeable with DDR and the DDR2 standard is not backwards compatible. You should always install DDR2 memory modules in the DDR2 DIMM slots.*
- *To enable successful system boot-up, always insert the memory modules into the **DIMM1** first.*

Power Supply

ATX 24-Pin Power Connector: PWR2

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13 (refer to the image at the right hand).



Pin Definition			
PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	NC
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

ATX 12V Power Connector: PWR1

This 12V power connector is used to provide power to the CPU.

Pin Definition	
PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

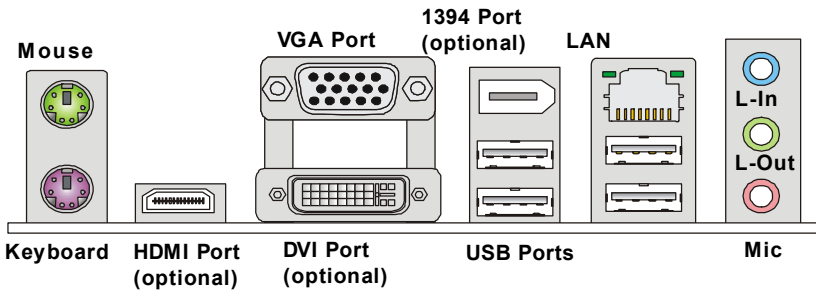


Important

1. Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.
2. Power supply of 350 watts (and above) is highly recommended for system stability.
3. ATX 12V power connection should be greater than 18A.

Back Panel

The back panel provides the following connectors:



► Mouse/Keyboard

The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

► HDMI Port (optional)

The High-Definition Multimedia Interface (HDMI) is an all-digital audio/video interface capable of transmitting uncompressed streams. HDMI supports all TV format, including standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable.

► VGA Port

The DB15-pin female connector is provided for monitor.

► DVI Port (optional)

The DVI (Digital Visual Interface) connector allows you to connect a LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect an LCD monitor, simply plug your monitor cable into the DVI connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information.)

► 1394 Port (optional)

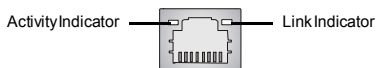
The IEEE1394 port on the back panel provides connection to IEEE1394 devices.

► USB Port

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

► LAN

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



LED	Color	LED State	Condition
Left	Orange	Off	LAN link is not established.
		On (steady state)	LAN link is established.
		On (brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	Off	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.
	Orange	On	1000 Mbit/sec data rate is selected.

► Audio Ports

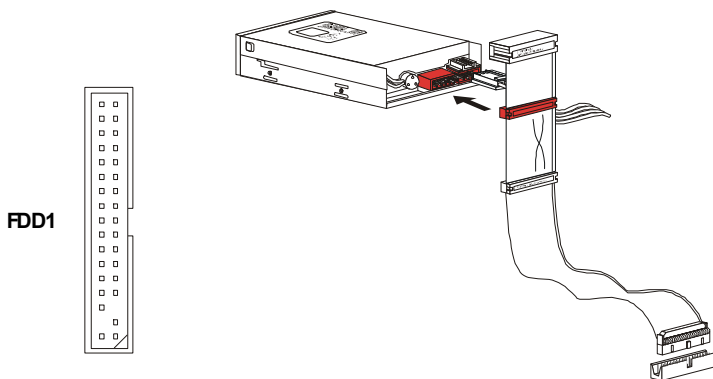
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue)** - Line In is used for external CD player, tape player or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.

Connectors

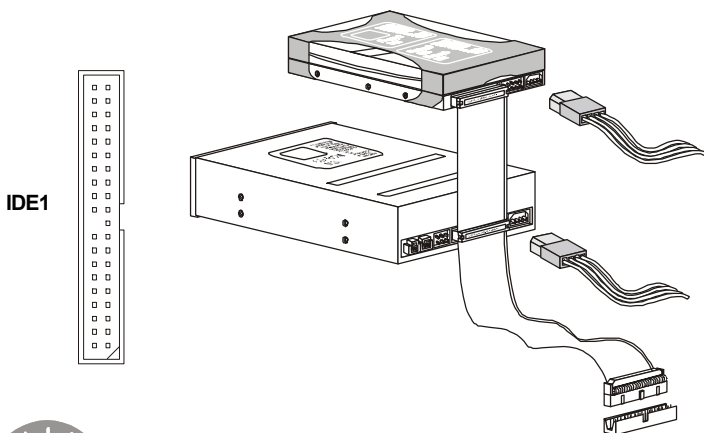
Floppy Disk Drive Connector: FDD1

This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.



IDE Connector: IDE1

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.

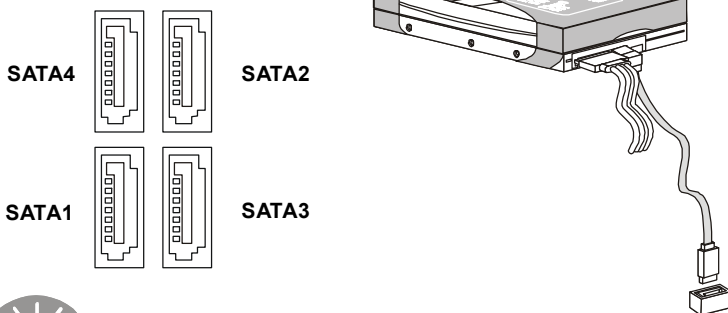


Important

If you install two IDE devices on the same cable, you must configure the drives separately to Primary / Slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.

Serial ATA Connector: SATA1/ SATA2/ SATA3/ SATA4

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.

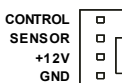


Important

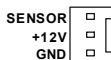
Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

Fan Power Connectors: CPUFAN, SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CPUFAN



SYSFAN1



Important

1. Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.
2. Fan cooler set with 3 or 4 pins power connector are both available for CPUFAN.

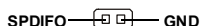
Chassis Intrusion Connector: JCI1

This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.

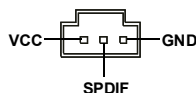


S/PDIF-Out Connector: JSP1 (2pin, 3pin optional)

This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



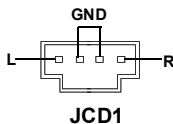
**JSP1 (2pin, for HDMI
graphics card)**



JSP1 (3pin)

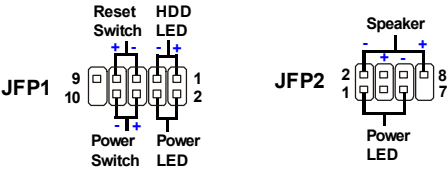
CD-In Connector: JCD1

This connector is provided for external audio input.



Front Panel Connectors: JFP1, JFP2

These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW +	Power Switch high reference pull-up
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW -	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

JFP2 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	SPK-	Speaker-
3	SLED	SuspendLED
4	BUZ+	Buzzer+
5	PLED	PowerLED
6	BUZ-	Buzzer-
7	NC	No connection
8	SPK+	Speaker+

Front Panel Audio Connector: JAUD1

This connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



Pin Definition

PIN	SIGNAL	DESCRIPTION
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	PRESENCE#	Active low signal-signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE# = 0 when a High Definition Audio dongle is connected
5	LINEout_R	Analog Port - Right channel
6	MIC_JD	Jack detection return from front panel microphone JACK1
7	Front_JD	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	NC	No control
9	LINEout_L	Analog Port - Left channel
10	LINEout_JD	Jack detection return from front panel JACK2



Important

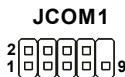
If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



Serial Port Connector: JCOM1

This connector is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial device.

Pin Definition

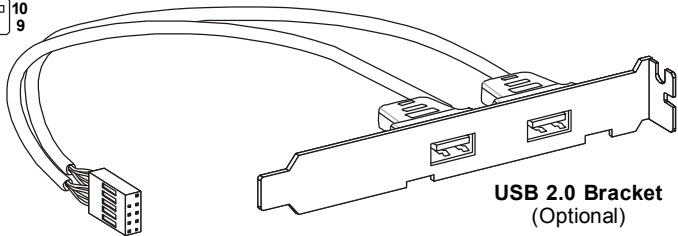


PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Front USB Connector: JUSB1 / JUSB2 / JUSB3(optional)

This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as **USB HDD, digital cameras, MP3 players, printers, modems and the like.**

JUSB1/2/3



Important

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

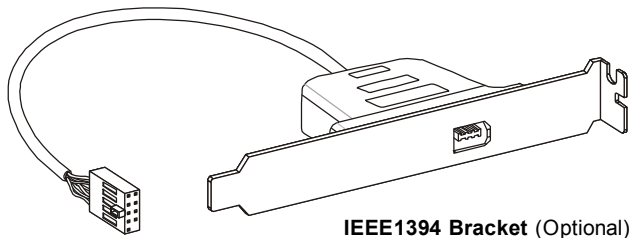
IEEE1394 Connector: J1394_1(optional)

This connector allows you to connect the IEEE1394 device via an optional IEEE1394 bracket.

Pin Definition

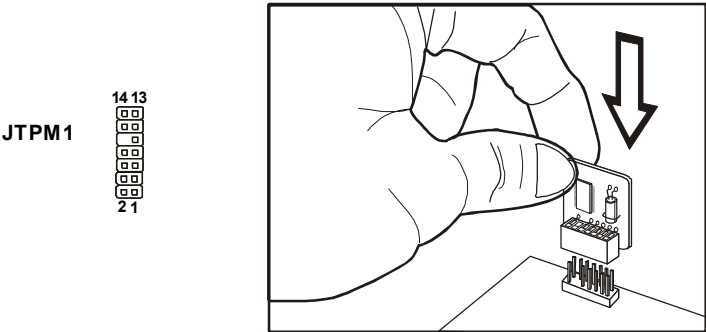
PIN	SIGNAL	PIN	SIGNAL
1	TPA+	2	TPA-
3	Ground	4	Ground
5	TPB+	6	TPB-
7	Cable power	8	Cable power
9	Key (no pin)	10	Ground

J1394_1



TPM Module connector: JTPM1(optional)

This connector connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details and usages.



Pin	Signal	Description	Pin	Signal	Description
1	LCLK	LPCclock	2	3V dual/3V_STB	3V dual or 3V standby power
3	LRST#	LPCreset	4	VCC3	3.3V power
5	LAD0	LPC address & data pin0	6	SIRQ	Serial IRQ
7	LAD1	LPC address & data pin1	8	VCC5	5V power
9	LAD2	LPC address & data pin2	10	KEY	No pin
11	LAD3	LPC address & data pin3	12	GND	Ground
13	LFRAME#	LPCFrame	14	GND	Ground

Jumpers

Clear CMOS Jumper: J1

There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the jumper to clear data.



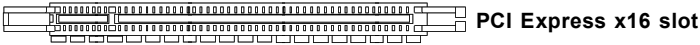
Important

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Slots

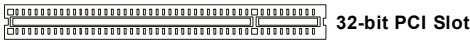
PCI (Peripheral Component Interconnect) Express Slots

The PCI Express slot supports the PCI Express interface expansion card.
 The PCI Express x 16 supports up to 4.0 GB/s transfer rate.
 The PCI Express x 1 supports up to 250 MB/s transfer rate.



PCI (Peripheral Component Interconnect) Slots

The PCI slots support LAN cards, SCSI cards, USB cards, and other add-on cards that comply with PCI specifications. At 32 bits and 33 MHz, it yields a throughput rate of 133 MBps.



Important

When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT W#	INT X#	INT Y#	INT Z#
PCI Slot 2	INT X#	INT Y#	INT Z#	INT W#

Chapter 3

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:

- ◆ An error message appears on the screen during the system booting up, and requests you to run SETUP.
- ◆ You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.



Important

- 1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
- 2. Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:*

A7366NMS V1.0 122506 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.

2nd - 5th digit refers to the model number.

6th digit refers to the chipset as I = Intel, N = nVidia, and V = VIA.

7th - 8th digit refers to the customer as MS = all standard customers.

V1.0 refers to the BIOS version.

122506 refers to the date this BIOS was released.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+ /PU>	Increase the numeric value or make changes
<- /PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F8>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can

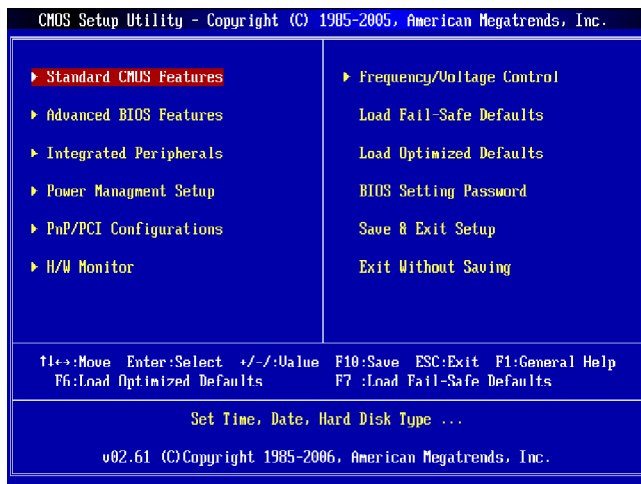
▶ Primary IDE Master
▶ Primary IDE Slave
▶ Secondary IDE Master
▶ Secondary IDE Slave

use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc>.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

The Main Menu



► Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

► Advanced BIOS Features

Use this menu to setup the items of AMI® special enhanced features.

► Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

► Power Management Setup

Use this menu to specify your settings for power management.

► PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

► H/W Monitor

This entry shows your PC health status.

► Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control and overclocking.

► Load Fail-Safe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.

► **Load Optimized Defaults**

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

► **BIOS Setting Password**

Use this menu to set the password for BIOS.

► **Save & Exit Setup**

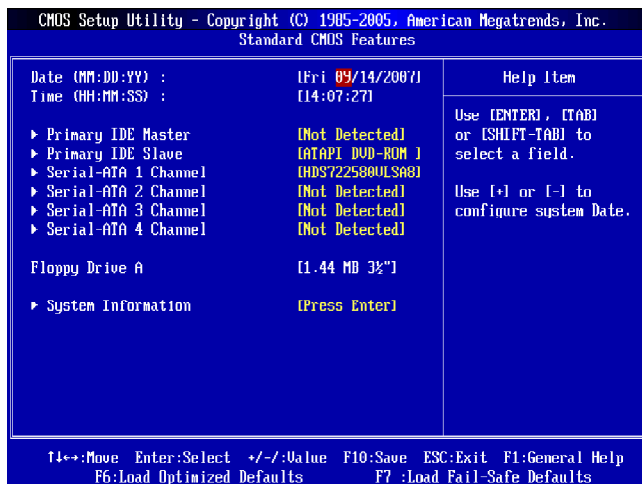
Save changes to CMOS and exit setup.

► **Exit Without Saving**

Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu includes some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



► Date (MM:DD:YY)

This allows you to set the system to the date that you want (usually the current date). The format is <day><month> <date> <year>.

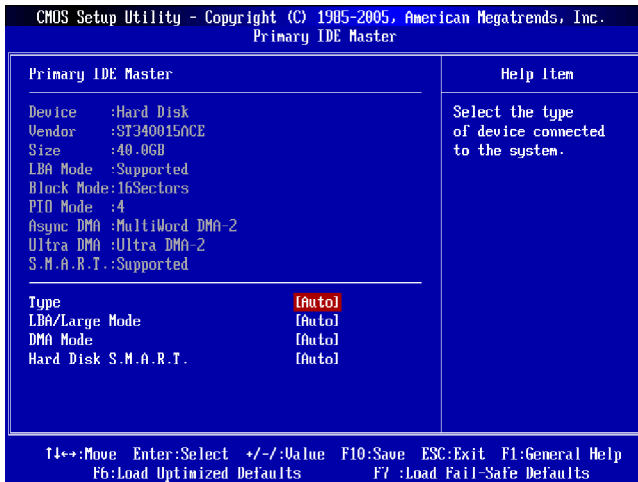
day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric function keys.
year	The year can be adjusted by users.

► Time (HH:MM:SS)

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

► Primary IDE Master/ Slave, Serial-ATA 1/2/3/4 Channel

Press <Enter> to enter the sub-menu, and the following screen appears.



► Device/Vendor/Size/LBA Mode/Block Mode/PIO Mode/Async DMA/Ultra DMA/S.M.A.R.T.

These will be showing the device information that you connected to the IDE/ SATA connector.(read only)

► Type

Select how to define the HDD parameters.

► LBA/Large Mode

This allows you to enable or disable the LBA Mode. Setting to [Auto] enables LBA mode if the device supports it and the devices is not already formatted with LBA mode [Disabled].

► DMA Mode

Select DMA Mode.

► Hard Disk S.M.A.R.T.

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.



Important

Primary IDE Master/ Slave, Serial-ATA 1/2/3/4 Channel are appearing when you connect the HD devices to the IDE/ SATA connector on the mainboard.

► Floppy Drive A

This item allows you to set the type of floppy drives installed. Available options: [None], [360 KB, 5.25 in.], [1.2 MB, 5.25 in.], [720 KB, 3.5 in.], [1.44 MB, 3.5 in.], [2.88 MB, 3.5 in.].

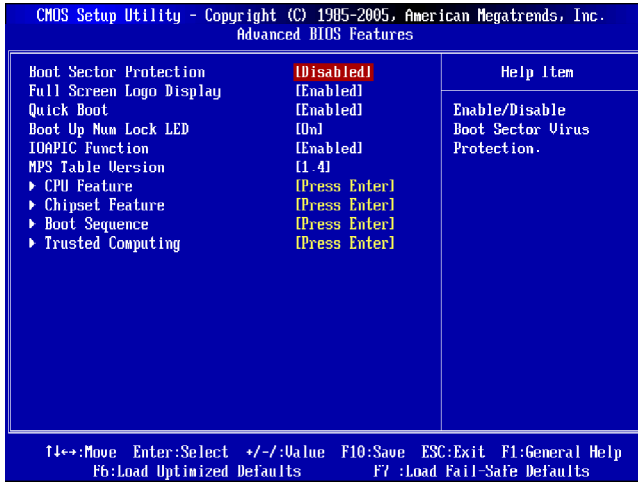
► System Information

Press <Enter> to enter the sub-menu, and the following screen appears.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
System Information	
Genuine Intel(R) CPU	@ 2.66GHz
CPUID/MicroCode	: 010671h/06h
CPU Frequency	: 2.66GHz (335x8)
BIOS Version	: U1.0BA 091407
Physical Memory	: 1984MB
Usage Memory	: 1984MB
Cache Size	: 6144 KB
	Help Item
↑↓←→:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help F6:Load Optimized Defaults F7:Load Fail-Safe Defaults	

This sub-menu shows the CPU information, BIOS version and memory status of your system (read only).

Advanced BIOS Features



► Boot Sector Protection

When you enable this item and someone attempt to write data into this area, BIOS will show a warning message on screen and it will alarm beep.

► Full Screen Logo Display

This item enables you to show the company logo on the bootup screen. Settings are:

- | | |
|------------|--|
| [Enabled] | Shows a still image (logo) on the full screen at boot. |
| [Disabled] | Shows the POST messages at boot. |

► Quick Boot

Setting the item to [Enabled] allows the system to boot within 10 seconds since it will skip some check items.

► Boot Up Num-Lock LED

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

► IOAPIC Function

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.

► MPS Table Version

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.

► CPU Feature

Press <Enter> to enter the sub-menu:

► Execute Disable Bit

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

► Chipset Feature

Press <Enter> to enter the sub-menu:

► HPET

The HPET (High Precision Event Timers) is a component that is part of the chipset. You can to enable it, and will provide you with the means to get to it via the various ACPI methods.

► VGA Share Memory

The system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card.

► Boot Sequence

Press <Enter> to enter the sub-menu:

► 1st/ 2nd/ 3rd Boot Device

The items allow you to set the first/ second/ third boot device where BIOS attempts to load the disk operating system.

► Boot From Other Device

Setting the option to [Yes] allows the system to try to boot from other device. if the system fails to boot from the 1st/ 2nd/ 3rd boot device.

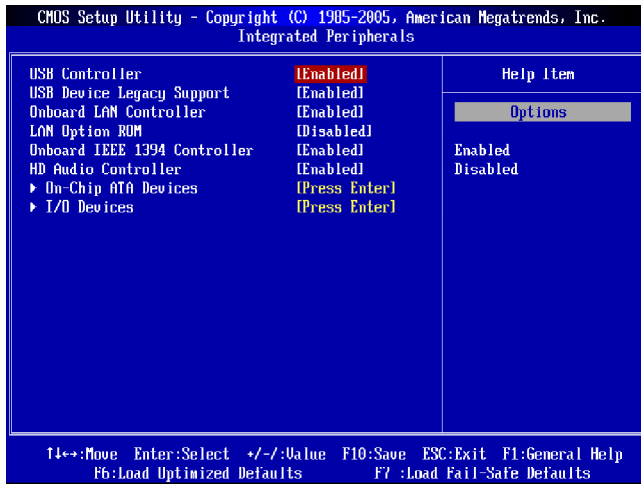
► Trusted Computing

Press <Enter> to enter the sub-menu:

► TCG/TPM SUPPORT

This setting allows you to enable/disable the TCG/TPM.

Integrated Peripherals



► USB Controller

This setting allows you to enable/disable the onboard USB controller.

► USB Device Legacy Support

Select [Enabled] if you need to use a USB-interfaced device in the operating system.

► Onboard LAN Controller

This item is used to enable/disable the onboard LAN controller.

► LAN Option ROM

This item is used to decide whether to invoke the Boot ROM of the LAN controller.

► Onboard IEEE 1394 Controller

This setting allows you to enable/disable the onboard IEEE1394 controller.

► HD Audio Controller

This setting is used to enable/disable the onboard audio controller.

► On-Chip ATA Devices

Press <Enter> to enter the sub-menu:

► On-Chip IDE Controller

This item allows you to enable/ disable IDE Controller.

► PCI IDE BusMaster

This item allows you to enable/ disable BIOS to used PCI busmastering for reading/ writing to IDE drives.

► **On-Chip SATA Controller**

This item allows you to enable or disable the SATA controller.

► **RAID Mode**

This item is used to enable/disable the RAID function for SATA devices.

► **SATA1 / 2 / 3 / 4 Channel**

When the **RAID Mode** sets to **RAID**, these items will available. These items allow users to enable or disable the RAID function for each SATA hard disk drive.

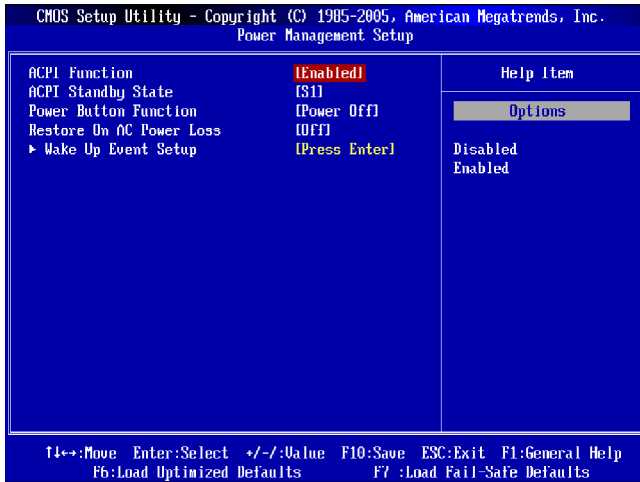
► **I/O Devices**

Press <Enter> to enter the sub-menu:

► **COM Port 1**

Select an address and corresponding interrupt for the first serial port.

Power Management Setup



Important

S3-related functions described in this section are available only when your BIOS supports S3 sleep mode.

► ACPI Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 2000/XP, select [Enabled].

► ACPI Standby State

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 2000/XP, you can choose to enter the Standby mode in S1 or S3 fashion through the setting of this field. Settings are:

- [S1] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.
- [S3] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

► Power Button Function

This feature sets the function of the power button. Settings are:

- | | |
|----------------|---|
| [Power Off/On] | The power button functions as normal power off button. |
| [Suspend] | When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off. |

► Restore On AC Power Loss

This item specifies whether your system will reboot after a power failure or interrupt occurs. Settings are:

- | | |
|--------------|---|
| [Off] | Always leaves the computer in the power off state. |
| [On] | Always leaves the computer in the power on state. |
| [Last State] | Restores the system to the status before power failure or interrupt occurred. |

► Wakeup Event Setup

Press <Enter> to enter the sub-menu:

► Resume From S3 by USB Device

This setting determines whether the system will be awakened from what power saving modes when input signal of USB devices are detected.

► Resume From S3 By PS/2 Keyboard

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 keyboard is detected.

► Resume From S3 By PS/2 Mouse

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected.

► Resume by PCI Device (PME#)

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

► Resume by PCI-E Device

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PCIe device.

► Resume by Onboard LAN

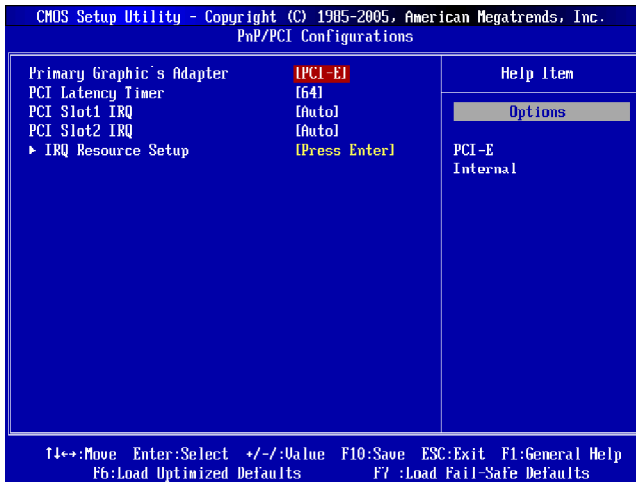
When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on the onboard LAN.

► Resume by RTC Alarm

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

PnP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or **P**eripheral **C**omponent Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



► Primary Graphic's Adapter

This setting specifies which graphics card is your primary graphics adapter.

► PCI Latency Timer

This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you shall set the item to higher values.

► PCI Slot1/ 2 IRQ

These items specify the IRQ line for each PCI slot.

► IRQ Resource Setup

Press <Enter> to enter the sub-menu and the following screen appears.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
IRQ Resource Setup		
IRQ3	[Available]	Help Item
IRQ4	[Available]	
IRQ5	[Available]	Options
IRQ7	[Available]	
IRQ9	[Available]	Available
IRQ10	[Available]	Reserved
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	

► IRQ 3/4/5/7/9/10/11/14/15

These items specify the bus where the specified IRQ line is used.

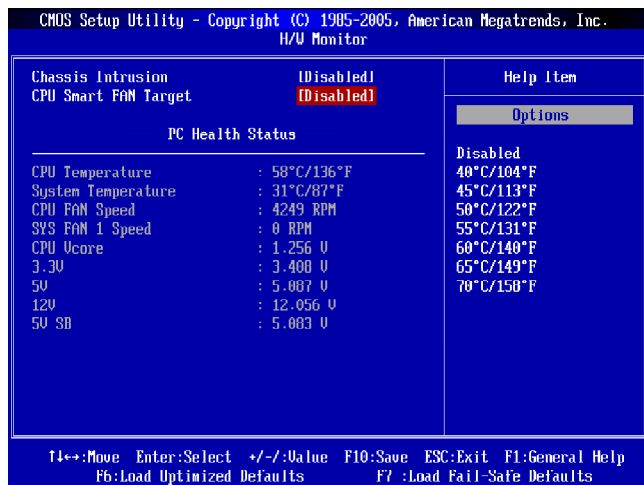
The settings determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an [Reserved] setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as [Available]. If all IRQs are set to [Reserved], and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices.



Important

IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.

H/W Monitor



► Chassis Intrusion

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

► CPU Smart FAN Target

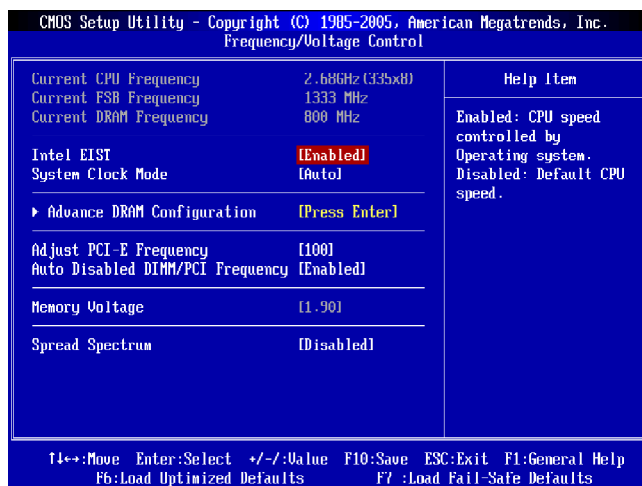
The mainboard provides the Smart Fan function which can control the CPU fan speed automatically depending on the current temperature to keep it within a specific range. You can select a fan target value here. If the current CPU fan temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

► PC Health Status

► CPU/ System Temperature, CPU FAN/ SYS FAN1 Speed, CPU Vcore, 3.3V, 5V, 12V, 5V SB

These items display the current status of all of the monitored hardware devices/ components such as CPU voltage, temperatures and all fans' speeds.

Frequency/Voltage Control



Important

Change these settings only if you are familiar with the chipset.

► Current CPU/ FSB/ DRAM Frequency

These items show the current clocks of CPU and Memory speed. Read-only.

► Intel EIST

The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which support speedstep technology.

► System Clock Mode

item allows you to select the system front side bus clock frequency (in MHz).

► Advance DRAM Configuration

Press <Enter> to enter the sub-menu:

► Memory Timings

This field has the capacity to automatically detect all of the DRAM timing. If you set this field to [Manual], the following fields will be selectable.

► tCL (CAS Latency)

When the **Memory Timings** sets to [Manual], the field is adjustable. This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

► tRCD

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance.

► tRP

When the **Memory Timings** sets to [Manual], the field is adjustable. This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refreshing may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

► tRAS

When the **Memory Timings** sets to [Manual], the field is adjustable. This setting determines the time RAS takes to read from and write to a memory cell.

► Command Per Clock (CMD)

This field controls the SDRAM command rate. Selecting [1T] makes SDRAM signal controller to run at 1T (T=clock cycles) rate. Selecting [2T] makes SDRAM signal controller run at 2T rate.

► tRRD

When the **Memory Timings** sets to [Manual], the field is adjustable. Specifies the active-to-active delay of different banks.

► tRC

When the **Memory Timings** sets to [Manual], the field is adjustable. The row cycle time determines the minimum number of clock cycles a memory row takes to complete a full cycle, from row activation up to the precharging of the active row.

► tWR

When the **Memory Timings** sets to [Manual], the field is adjustable. Minimum time interval between end of write data burst and the start of a precharge command. Allows sense amplifiers to restore data to cells.

► tWTR

When the **Memory Timings** sets to [Manual], the field is adjustable. Minimum time interval between the end of write data burst and the start of a column-read command. It allows I/O gating to overdrive sense amplifiers before read command starts.

► Adjust PCI-E Frequency

This field allows you to select the PCIe frequency (in MHz).

► Auto Disabled DIMM/PCI Frequency

When set to [Enabled], the system will remove (turn off) clocks from empty DIMM and PCI slots to minimize the electromagnetic interference (EMI).

► Memory Voltage

Adjusting the memory voltage can increase the DDR speed.

► Spread Spectrum

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at Disabled for optimal system stability and performance. But if you are plagued by EMI, set to Enabled for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.



Important

1. *If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.*
2. *The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.*
3. *Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.*

Load Fail-Safe/ Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load Fail-Safe Defaults, a message as below appears:



Select [OK] and press *Enter* to load the BIOS default values for the most stable, minimal system performance.

When you select Load Optimized Defaults, a message as below appears:



Select [OK] and press *Enter* to load the default factory settings for optimal system performance.

BIOS Setting Password

When you select this function, a message as below will appear on the screen:



Enter New Password

Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.